

MITCHELL E. DANIELS, Jr., Governor STATE OF INDIANA

DEPARTMENT OF HOMELAND SECURITY

JOSEPH E. WAINSCOTT JR., EXECUTIVE DIRECTOR

Indiana Department of Homeland Security Indiana Government Center South 302 West Washington Street Indianapolis, IN 46204 317-232-3980

MEMORANDUM

To:

Members of the Fire Prevention and Building Safety Commission

From: Mara Snyder MS

Date:

May 18, 2009

Subject: LSA Doc. #09-139 - Proposed amendments to the 2005 Indiana Residential Code

concerning electrical provisions

Attached please find the Summary of Public Comments at the Public Hearing on May 7, with attachments, and a Summary of Public Comments Received Before or After the Public Hearing, with attachments. These 2 summaries, with their attachments, represent all of the public comments received concerning these proposed amendments to the 2005 Indiana Residential Code. All of these comments address whether or not to re-insert portions of the Electrical Code Review Committee's draft proposed rule concerning requirements for:

- (a) the installation of arc fault circuit interrupters in branch circuits in dwelling units that supply outlets in other than kitchens, bathrooms, unfinished basements, garages, and outdoors (for the first time in Indiana);
- (b) all 15- and 20- ampere, 125- and 250-volt nonlocking receptacles installed in wet locations to be of the listed weather-resistant type(for the first time in Indiana); and
- (c) all 125-volt, 15- and 20-ampere receptacles installed in dwelling units in specified areas to be tamper resistant (for the first time in Indiana).

When the proposed rule was submitted to the State Budget Agency for review and approval, these provisions were omitted because of the following fiscal impact calculated by staff:

(a) = \$2,963,909.00

(b) = \$28,728.00

(c) = \$2,048,101.00

TOTAL FISCAL IMPACT in the first 12 months of the rule's effective date = \$5,040,738.00

These fiscal impacts were calculated on the basis of the average number of affected locations in a Class 2 structure times the number of Class 2 structures for which permits were pulled in 2007.

Summary of Public Hearing on LSA Document #09-139 May 7, 2009 Indiana Government Center South Conference Center Room 22

Pursuant to IC 4-22-2-26, a public hearing was held concerning the proposed amendments to 675 IAC 14 contained in LSA Document #09-139, as proposed by the Fire Prevention and Building Safety Commission, and as published in the Indiana Register as 20090408-IR-675090139PRA on April 8, 2009. Staff members present included Raleigh Kouns and John Hibner, Code Specialists, and Beth Sutor, Commission Recorder. Fire Prevention and Building Safety Commission members present included Chairman David Hannum, Vice-Chairman Howard Cundiff, Commission member Ted Ogle, and Commission member Michael Christoffersen.

Mara Snyder, hearing chairperson, called the hearing to order at 9:06 a.m. and gave the following brief explanation of the proposed rule:

The rule amends numerous provisions of 675 IAC 14-4.3, and adds provisions to 675 IAC 14-4.3 concerning the 2005 Indiana Residential Code, so as not to be in conflict with provisions of the 2009 Indiana Electrical Code, 675 IAC 17-1.8. It repeals 675 IAC 14-4.3-233.3 and 675 IAC 14-4.3-246 and will be effective 30 days after filing with the Publisher.

She then opened the floor to public testimony.

Russ Sanders, a representative of the National Fire Protection Association (NFPA), urged the Commission to re-insert the requirements for arc fault circuit interrupter (AFCI) and tamper-resistant receptacles (TRR). He noted that the National Electrical Code (NEC) is considered the blueprint of electrical safety in the US and around the world, providing the input of over 450 experts with a wide range of knowledge in their code. Members of the homebuilding industry also serve on the NEC technical committees and, knowing that there would be a cost involved which would affect their industry, still felt strongly enough about the importance of the AFCI and TRR that they did not oppose their inclusion in the NEC. Mr. Sanders also stated that, even if the Commission decided not to re-insert the AFCI and TRR provisions, he felt it was important for the Commission to adopt the 2008 NEC because of the updated technology it contains.

Mr. Sanders requested that his printed remarks also be made part of the public comments for LSA Doc. #09-140.

Mr. Sanders' printed remarks are appended to this summary as Attachment 1.

Steve Jones, Pike Township Fire Marshal, speaking on behalf of the Indiana Fire Chiefs and himself, supported adoption of arc fault requirements in homes, having had many personal fire investigation experiences with arcing results. He felt Indiana would face greater financial impact due to losses of life and property resulting from the fires caused by arcing that wasn't prevented than the financial impact of installing AFCIs.

decision should be left to the homeowner. In addition, should a future owner so choose, they can be installed at a later date.

Mr. Keller's written comments are appended to this summary as Attachment 5.

Brett Brenner, President of Electrical Safety Foundation International, stated most homeowners don't understand the electrical systems in their homes. Having tamperproof receptacles in their homes makes safety something you don't have to think about. He noted that of the unknown number of children who are injured playing with electrical outlets, seven children per day are hurt seriously enough to go to a hospital from sticking things into electrical outlets. He urged the Commission to retain the requirement for TRRs.

Carlie Hopper, on behalf of the Indiana Builders Association (IBA), stated that her organization feels that electrical codes affecting residential issues should not be handled by the Electrical Code Review Committee or any other code review committee except the Residential Code Review Committee. IBA also is concerned that the added costs relating to the provisions requiring AFCIs and TRRs will adversely affect their industry.

Alan Manche, Square D, supported the adoption of 2008 NEC. He was not in favor of removing the AFCI requirements, saying they had been removed by a flawed fiscal impact process. He asked why no public document was in place showing what was submitted or why it was taken out to make a \$0 impact. He suggested LSA Doc. #09-139 and LSA Doc. #09-140 should be rescinded, the Electrical Code Review Committee reconvened, and have the committee members calculate accurate costs for the fiscal impact.

Mr. Manche's written comments are appended to this summary as Attachment 6.

Lynn Madden, on behalf of the IBA, stated that the IBA wants residential regulations only in the Residential Code, and that residential code issues should only be handled by the Residential Code Review Committee.

Jeff Bluethmann, Lester Sales, advised that tamper-resistant receptacles which can prevent many injuries are not new technology. They are readily available, and cause no additional labor for electricians to install.

In addition to the public comments provided above, the following written public comments were provided at the conclusion of oral public comments:

- a. Letters with the same text that requested the Commission to re-insert the provisions requiring AFCIs and TRRs were submitted by the following:
 - 1. Wayne Ogvodowski, Lowell, Indiana (appended to this summary as Attachment 7);
 - 2. Edwin Gonzalez, Hammond, Indiana (appended to this summary as <u>Attachment 8</u>);

- 19. Andrea Edward, Hammond, Indiana (appended to this summary as Attachment 24);
- 20. Ronald L. Novak, Director Hammond Department of Environmental Management, Hammond, Indiana (appended to this summary as <u>Attachment 25</u>);
- 21. James Callahan, City of Hammond, Indiana (appended to this summary as Attachment 26);
- 22. Cynthia Sims, City of Hammond Building Department, Indiana (appended to this summary as Attachment 27);
- 23. Michael Dawson, City of Gary Building Department, Indiana (appended to this summary as Attachment 28);
- 24. Jesse J. Butler, City of Gary Building Department, Electrical Inspector, Indiana (appended to this summary as <u>Attachment 29</u>);
- 25. David R. Stalf, Chief Electrical Inspector, City of Gary, Indiana (appended to this summary as <u>Attachment 30</u>);
- 26. Ken Finke, KAAS Services, Highland, Indiana (appended to this summary as Attachment 31);
- 27. The following members of the City of Hammond, Indiana Fire Department:
 - a. David A. Hamm, Fire Chief (appended to this summary as Attachment 32);
 - b. Pat Moore Jr., Deputy Fire Chief (appended to this summary as Attachment 33);
 - c. Kevin Margraf, Chief Fire Inspector (appended to this summary as Attachment 34);
 - d. William A. Cook (appended to this summary as Attachment 35);
 - e. Jeffrey Marshack(appended to this summary as Attachment 36);
 - e. 2 other members of the Fire Department who's names were not completely legible (appended to this summary as <u>Attachments 37-38</u>);
- b. A letter from David R. Stalf, Chief Electrical Inspector, City of Gary, Indiana, member of the Electrical Code Review Committee and member of the International Association of Electrical Inspectors-Indiana Chapter in which Chief Inspector Stalf strongly urges the Commission the re-insert the AFCI and TRR related provisions. Chief Inspector Stalf's letter is appended to this summary as <u>Attachment 39</u>.
- c. An e-mail and attached letter from Thomas Roy, Sr. Product Line Manager, Pass & Seymour Legrand Company, an electrical products and systems company, Syracuse, New

Testimony of Russell E. Sanders National Fire Protection Association to the Indiana Fire Prevention & Building Safety Commission LSA Documents 09-139 & 09-140 May 7, 2009

Good morning. My name is Russ Sanders, and I am the Central Regional Manager for the National Fire Protection Association (NFPA). I am here on behalf of the NFPA to urge this Commission to support the adoption of the 2008 NFPA 70, National Electrical Code® (NEC®) with the expanded arc-fault circuit interrupter (AFCI) and tamper-resistant receptacle (TRR) provisions that were included in the electrical committee's initial proposed draft report. In terms of fire and life safety, it is imperative that these provisions not be removed from the Indiana Electrical Code and/or Indiana Residential Code.

The NEC focuses on the proper installation of electrical code systems and equipment to protect people and property from the potential dangers of electricity. As electrical equipment has become more complex and widespread, the NEC has adapted to meet new challenges. Revised every three years to allow for new technologies and improved installation safety practices, the code is the most detailed of any code or standard. As a result, the NEC is a ready-to-use, comprehensive code suitable for adoption.

For experts in the electrical community, the NEC is considered the blueprint for electrical safety throughout the world. We believe the best measure of the NEC's valuable role in public safety is its widespread use and past performance. Today, the NEC serves as the basis for electrical codes in all 50 states and around the world. Further, according to a recent survey, 23 states have adopted the 2008 NEC with the AFCI and TRR provisions included and many others are in the process of doing the same. NFPA is proud that the quality of the NEC makes it the most widely used and adopted code for electrical installations and the most widely adopted construction code in the world.

Using the ANSI-accredited consensus code development process, the NEC's development involves 450 volunteers, representing electrical contractors, designers, inspectors, and manufacturers; electrical testing laboratories, electrical suppliers and utilities; as well as enforcing authorities, insurance organizations, labor, and other users. These volunteers are organized into 20 code-making panels, balanced to ensure fair representation of affected interests. An 11-member correlating committee oversees the efforts of the panels. And because the process utilizes a comprehensive pool of professional expertise and safety knowledge, the resulting code protects the public while allowing for advances in design and development.

Many of the volunteers involved in the NEC development process you know well. They are representatives of the National Electrical Contractors Association; the International Brotherhood of Electrical Workers; the International Association of Electrical Inspectors; the National Association of Homebuilders; the Independent Electrical Contractors; and many others representing a broad cross section of interests and expertise.

According to the most recent NFPA statistics, each year home electrical problems account for more than 53,600 residential fires in the United States. The cost of these fires – estimated to be at \$1.4 billion annually in direct property damage – is not nearly as staggering as the human toll they claim. More than 500 people lose their lives and an additional 1,400 others are seriously injured. In a continuing effort to reduce these life safety and property loss concerns, the 2008 NEC includes provisions that reflect the two fundamental safety tenets that have been the purpose of the NEC for its more than 112 year history: protection against fire and shock hazards.

Noteworthy changes in the 2008 NEC include the following:

1) Expansion of requirements on ground-fault circuit interrupter protection. These all important devices are time-tested in protecting the users of electrical appliances against shock hazards.

2) A new requirement for tamper-resistant receptacles (TRR)

TRRs are aimed at protecting unsuspecting young children from accidental contact with energized parts of electrical outlets. Each year approximately 2,400 children suffer severe shock and burns when they stick items into the slots of electrical receptacles. The cost of a TRR adds about \$0.50-0.75 to the cost of an unprotected receptacle. Based on current statistics, the average home has about 75 receptacles resulting in an overall added cost of approximately \$50.

3) Expansion of arc-fault circuit interrupter protection (AFCI)

The original call for enhanced branch circuit and cord protection came from the US Consumer Product Safety Commission (CPSC) based on fires attributed to electrical origin. The manufacturers, in concert with Underwriters Laboratories, worked toward developing a product and a product standard to address the CPSC concern. The AFCI was the product developed as the means to mitigate the types of circuit malfunctions that circuit breakers and fuses are not designed to protect against. The 2008 NEC expands the areas within a home required to have AFCI protection. Modern technology has provided us with the opportunity to incorporate this next generation of circuit protective devices into homes. These devices advance the cause of electrical safety by providing early reaction and circuit interruption where wiring systems concealed within walls and ceilings are damaged. These devices also respond to damaged appliance cords, a known cause of home fires.

The Indiana Electrical Code sub-committee recommended by an overwhelming majority that each of the above mentioned new and expanded provisions in the 2008 NEC be included in the Indiana Electrical Code. I hope-that this Commission will honor the sub-committee's recommendations, as there is no question that not doing so will result in needless deaths and injuries.

The CPSC believes that the AFCI form of circuit breaker, if installed in all homes. could prevent 50% of electrical fires from occurring. I appreciate the fact that any cost increase in home construction must be closely scrutinized; however, the cost for including this life-saving technology is truly insignificant. Using the 1700 square foot dwelling unit as an example, the NEC requires only 3 general lighting circuits, plus two circuits for the kitchen area, a laundry circuit and additional circuits for any specialized equipment, such as clothes dryers, electric ranges, and air-conditioning equipment. Based on the minimum circuit requirements the 2008 NEC would require only four AFCIs for this single-family dwelling. The electrical system of a single-family dwelling wired per the 2005 NEC is, in all likelihood, equipped with two or three AFCIs. The net increase of AFCIs based on the 2008 NEC is only one or two devices. With that said most electrical contractors provide more circuits than the national standard requires. Even if the number of circuits requiring AFCI protection in this dwelling is doubled to eight, the increase in the number of AFCIs is only going to be five or six because two or three are already being provided to comply with the 2005 NEC.

Total cost of applying the 2008 NEC code requirements to three houses

The cost impact statements below were prepared by three board members of the Ohio Chapter of the International Association of Electrical Inspectors. All three members have extensive experience with the electrical code. If these costs are amortized over a 30 year mortgage, the resulting monthly costs based on the current prime rate are as follows:

900 square foot home = \$160.18 or 93 cents/month 1700 square foot home = \$205.27 or \$1.19/month 2100 square foot home = \$241.36 or \$1.40/month

However, the discussion of affordability is a red herring. Historically the mathematical relationship between the cost to build a home and the cost to buy a home has been questionable at best. The price of a new home is governed by market forces, including the cost of existing homes. Savings that are realized from new methods and less expensive materials, such as lightweight truss construction, are typically not passed on to the consumer. Granite counter tops and whirlpool baths are often installed in spec homes, even though they are not required, yet those homes still need to compete with the existing housing stock.

Representatives speaking on behalf of the homebuilding industry have been vocal in opposing the important and needed safety improvements in the 2008 NEC. Their opposition has been based primarily on cost. This industry segment is represented on the NEC technical committees and was aware that these changes were going to be made unless they brought the issue before the NFPA membership with a persuasive argument. They chose not to do so.

In conclusion, these changes, which were arrived at after significant substantiation and deliberation from numerous, diverse organizations and individuals, have a single-minded purpose of making electrical systems safe in the place that we expect to be safest – our homes.

NFPA supports the adoption of the 2008 NEC as written understanding that states may have special circumstances that need to be addressed though the state committee process. However, we believe the amendments removing AFCI and TRR provisions from the electrical committee's initial proposed draft report were based on an inaccurate fiscal impact analysis. It is our hope that the Commission will restore these fire and life safety provisions.

Thank you for the opportunity to address this Commission. We at NFPA look forward to working with you and supporting the adoption of the 2008 NEC.



May 7, 2009

David L. Hannum, P.E., Chairman Fire Prevention and Building Safety Commission Indiana Department of Homeland Security 302 W. Washington Street Indianapolis, Indiana, 46204

Dear Chairman Hannum,

I am writing to urge the Commission to discuss and consider the adoption of five code requirements that were removed by Department of Homeland Security staff from the proposed rules. On February 12, 2009 the committee participants were informed that the agency had unilaterally removed these code requirements, purportedly to obtain approval from the State Budget Agency. If this approval is required by law, then that agency should be willing to go on record with their disapproval.

I have been able to participate in eleven code review committees formed by the Fire Prevention and Building Safety Commission, including the Indiana Electrical Code Review Committee. I understand that these committees are only drafting proposed rules to be presented to the Commission, and that the final decision on what to adopt and present to the Governor lies solely with the Commission.

A considerable amount of time was spent by our committee debating, researching and voting upon some of the electrical requirements removed by the agency. If our proposed rule does not get to the Commission, then why is a code review committee even needed? The Commission could direct staff to work upon a proposed rule, without the illusion of a consensus committee. The actions of the agency in removing these requirements shows contempt for the committee members, whose time and treasure was spent considering what is best for Indiana.

I am not advocating adoption, or non-adoption of the removed code requirements, only that they be considered by the Commission in the light of day, at a public meeting and with a public vote. The code requirements, which constitute either additions or removals from the two LSA documents, are the following sections from the 2008 National Electrical Code:

Article 210.8(B)(5)-GFCI protection near sinks in other than dwelling units

Article 210.12(B)-AFCI protection for dwelling unit branch circuits

Article 406.8(B)(1)-weather-resistant receptacles in wet locations

Article 422.52-GFCI protection for electric drinking fountains

Article 406.11-tamper-resistant receptacles in dwelling units

Sincerely,

leff Dean

To: David Hannum and Mara Snyder

From: David Kish 7 1 Control Date: May 7, 2009

Re: Indiana Residential and Electric Codes

Attached are five (5) proposed code changes to the 2008 Indiana Electric Code and three (3) proposed code changes to the 2005 Indiana Residential Code; the residential code changes are proposed for consistency with the new electric code.

The reason for the code changes is identified in the appropriate section of each document. I will discuss the proposed electric and residential code changes for arc-fault circuit interrupters (AFCI) in more detail in this memorandum.

AFCIs are circuit breakers that are able to detect arcing faults and open even if no overcurrent condition is present; they are designed to reduce the frequency of fires resulting from arcs in electric distribution systems. The costs and benefits of these devices has been a source of discussion and contention nationally and in the state since provisions for them were introduced in the model code. It is instructive to review the magnitude of the problem AFCIs are designed to reduce/eliminate when considering requiring them in the electric and residential codes. Table – 1 shows data from the State Fire Marshall's office for residential structure fires caused by "electrical distribution" for the years 2004 to 2007. The "arcing fire loss" column in this table is a calculated as 45.5% of the total loss values in Table –1; this calculation is based on data found in the FEMA Topical Fire Report Series, Volume 8, Issue 2 / March 2008 (see Table – 2). In three of the last four years for which data was available, the "arcing fire loss" value is in excess of \$800,000.

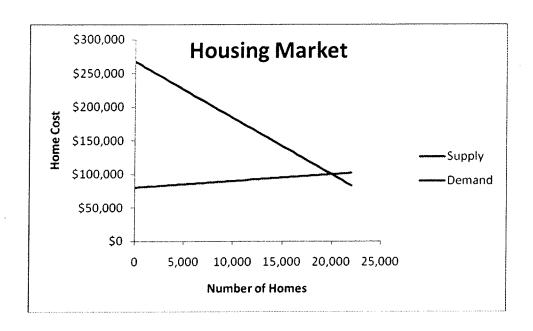
After quantifying the potential monetary benefit from AFCIs, we turn to device costs. For this discussion, I will combine all the incremental costs of the 2008 National Electric Code identified by the Ohio Chapter of the International Association of Electrical Inspectors (attached to this memorandum) and assign that value (\$250) as the cost of AFCIs. The most recent published data I was able to find regarding the number of homes built in Indiana list approximately 20,000 single-family building permits issued (2007). For the purposes of this discussion, I will assume the average value of these homes is \$100,000, and I further assume the builder earns a \$20,000 profit (land, labor and material cost is \$80,000). I use this data to generate the supply curve shown in Figure – 1 (no homes sold at cost and 20,000 homes sold at \$100,000). I generate a supply curve for builders following the 2008 NEC by adding \$250 to the original supply curve at every point.

	Arcino	Fire I ose		\$377.255	\$277.118	İ	\$2,848,764
	Total Loss		\$354.715 \$1.862.115	\$870.351	\$158.751 \$1.806.852	\$1,266,150 \$496,550 \$1,762,700	\$5,039,152 \$1,221,866 \$6,261,018 \$2,848,764
Residential Structure Fire Causes – electrical distribution From IDHS Current Fire Service Statistics (available at IDHS web site)	S		\$354.715	\$211.850	1	\$496 550	\$1,221,866
idential Structure Fire Causes – electrical distribut From IDHS Current Fire Service Statistics (available at IDHS web site)	Property	Loss	\$1,507,400	\$617.501	\$1.648.101	\$1.266.150	\$5,039,152
re Fire Causore Service Statisti	Firefighter	injuries					
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Residen From	Civi	injuries	7			6	12
	livilian	deaths					-
		fires	59	90	43	73	225
	date		2007	2006	2005	2004	Total

 Table – 1
 Indiana Residential Structure Fire Causes 2004 - 2007

reading ractors Contributing to Ignition, Electrical Fires, 2003-2005*	ical Fires, 2003-2005*
Factor Contributing to Ignition Unspecified short-circuit arc Short-circuit arc from defective, worn insulation Arc from faulty contact, broken conductor	% of fires 26.0% 15.1% 4.4% 45.5%
* from FEMA Topical Fire Report Series, Volume 8, Issue 2 / March 2008	2 / March 2008

 Table – 2
 Leading Factors Contributing to Ignition, Electrical Fires



 $Figure-1 \qquad Assumed \ Housing \ Market \ Supply \ and \ Demand$

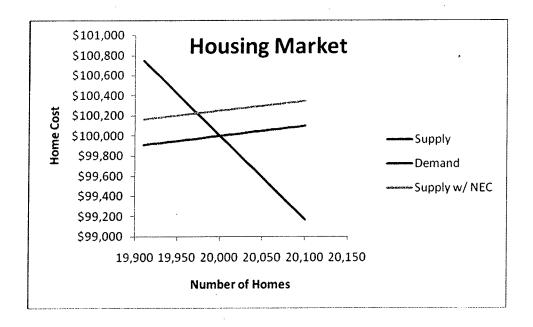


Figure – 2 Housing Market Supply and Demand near equilibrium

The demand curve will intersect supply at the 20,000 home, \$100,000 point, and I obtain the slope of the demand curve from published data on the price elasticity of demand (I used E = -0.6). The demand curve is also shown in Figure -1; Figure -2 shows the supply and demand curves in the area around the equilibrium. We can understand the impact of the new code provisions by determining the change in the number of units sold. For an elasticity of -0.6, thirty (30) fewer homes are sold. This figure seems reasonable; a \$250 increase in cost is unlikely to keep large numbers of people from making a \$100,000 purchase.

Table -3 estimates the impact of the code change for a range of demand elasticity consistent with estimates from the literature. To suppliers, the "cost" of the code change is the loss of \$20,000 profit for 30 homes (with E = -0.6) - \$600,000 less income. Table -3 also indicates demand elasticity closer to zero will have less impact; the change in the number of homes is smaller. Assigning a larger average value to a home also reduces the impact of the code change; Table -3 lists the change in number of units sold for average home values of \$150,000 and \$200,000. The potential benefit of AFCIs, i.e., reducing the \$850,000 loss from arcing fires in 2007 exceeds the impact of the change on suppliers (\$600,000).

Elasticity	Change in	Loss of	Change in	Change in
	Quantity	Revenue	Quantity	Quantity
	(\$100 k house)	(\$100k house)	(\$150 k house)	(\$200 k house)
-0.2	10	\$200,000	7	5
-0.3	15	\$300,000	10	8
-0.4	20	\$400,000	13	10
-0.5	25	\$500,000	17	13
-0.6	30	\$600,000	20	15

Table – 3 Elasticity data

Clearly, someone must pay the additional \$250 per home associated with full compliance with the 2008 National Electric Code (NEC), and that person is the homeowner. If we assume the home is financed for 30 years at 6% interest, homeowners can pay more for a cup of coffee each day than the extra \$1.50 per month that brings the additional safety benefits of AFCIs and tamper resistant receptacles.

¹ Hanushek, Eric A. and John M. Quigley, "What is the Price Elasticity of Housing Demand?" *The Review of Economics and Statistics*, Volume 62, Issue 3 (Aug., 1980), 449-454.

² Congressional Budget Office, "Housing Prices, Housing Choices and Military Housing, Appendix B," October 1998.

Consumers are willing to pay a premium for what they perceive as greater safety. Perhaps one of the best examples of this is the desire to drive larger, more expensive automobiles that are less fuel-efficient because they are viewed as "safer" than small vehicles. How can we develop a desire like this for AFCIs?

It is clear that many people are passionate about the issues associated with adopting a new electric (and residential code) – AFCI breakers may be the issue about which people are most passionate. If we can devote the energy that went into discussing these issues to educating consumers about the safety benefits associated with the 2008 NEC, we can shift the demand curve back to the initial equilibrium point (20,000 units, see Figure - 3). This is truly a win-win situation.

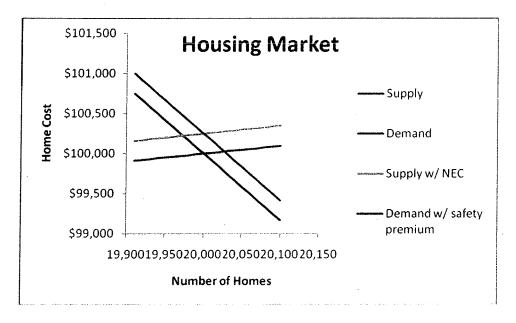


Figure -3 Housing market with consumer demand "safety premium"



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E3802.11 Proponent		473
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David Kish, PE, Ph.D. Address		
	i	hone
210 Floyd Ct., West Lafayette, IN 47906		765) 491-4902
Change to read as follows Add to read as follows	Delete and substitue as follows	Delete without substitution
Delete Section E3802.11. All 120-volt, single photoutlets installed in dwelling unit family rooms, dbedrooms, sunrooms, recreation rooms, closets protected by a listed arc-fault circuit interrupter, of the branch circuit. Exception No.1: Where RMC, IMC, EMT or steel of 250.118 using metal outlet and junction boxes between the branch-circuit overcurrent device a combination AFCI at the first outlet to provide procircuit.	ining rooms, living rooms, a, hallways, or similar rooms combination-type, installed armored cable, Type AC, made is installed for the portion and the first outlet, it shall be	parlors, libraries, dens, s or areas shall be to provide protection eeting the requirements of the branch circuit a permitted to install a
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Code Title	· · · · · · · · · · · · · · · · · · ·	Edition
Indiana Residential Code		2005
Section number and title		Page
E3902.14		494(?)
Proponent	Title	
David Kish, PE, Ph.D.		
Address		Phone
210 Floyd Ct., West Lafayette, IN 47906		(765) 491-4902
PROPOSED CODI	E CHANGE (Check One)	
igsquare Change to read as follows $igsquare$ Add to read as follows $igsquare$	Delete and substitue as follows	Delete without substitution
	EASON	
Insert language to be consistent with the proposite receptacles in dwelling units are intended to incommission data suggest that over the past 10 yhospitals for injuries resulting from inserting objuggested as an alternative to tamper-resistant of University Biokinetics Laboratory found that 100 plastic outlet caps in less than 10 seconds.	rease safety for children. years, 24,000 children hav jects into receptacles. Pla receptacles; a study cond	Consumer Product Safety e been treated in astic outlet caps are often ucted by the Temple
REVIEW REC	COMMENDATION	
Approve		
Disapprove		
Approve as amended		
Surther Study		



"Let the Code Decide" OHIO CHAPTER

International Association of Electrical Inspectors

Understanding the Cost Impact of the 2008 NEC

President
Jack Jamison
West Virginia Division

First Vice-President Joe Voros Western Reserve Division

Second Vice-President Dewayne Jenkins Southwest Division

Junior Past-President Mike Farrell Northwest Division

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Inspector Member Doug Baxter Akron Division

Inspector Member John Grivensky Eastern Division

Inspector Member Central Division

Inspector Member Stephanie Swan Northwest Division

Associate Member & Membership Chairman Ronald F. Schapp

Western Section Chapter Representative Thomas E. Moore

Education Chairman Michael G. Mihalisin

Historian Oran P. Post The impact of additional Arc-Fault Circuit Interrupters and the new Tamper Resistant Receptacles in the 2008 NEC has prompted controversy driven by the misunderstood cost impact of moving from the 2005 NEC to the 2008 NEC. The NEC provides for the safe use of electricity from fire and shock. Technology over the years has enhanced that protection with minimal cost impact. Circuit breakers protect the home from overloaded circuits to prevent fires and GFCIs are well recognized in the safe use of electricity to protect us and our children from shock hazards. The GFCI entered the home in the 1970s, AFCIs became part of the NEC in the 1999 NEC and the tamper resistant receptacle in the 2008 NEC.

We will show that the impact of adding AFCI protection and Tamper Resistant Receptacles will have minimal impact on affordable housing. Keep in mind the NEC establishes the requirements for the safe electrical operation of a home. Additional circuits that include extra lighting, specific known loads, or a desire to separate circuits for isolation purposes is an additional cost that may be incurred that is once again not driven by the NEC. The additional lighting loads or appliances are not code driven, they are upgrades similar to windows, roofing configuration, or brick vs siding.

This report has been prepared by the following Ohio Chapter Board of Director Members; Oran P. Post, Electrical Inspector for the City of Tallmadge, Ohio and Thomas E. Moore, Electrical Inspector for the City of Beachwood, Ohio and Tim McClintock, Building Official/Electrical Inspector for Wayne County, Ohio. All three Board Members have extensive experience with the code development process.

This report provides an impact statement based entirely on the 2008 NEC requirements for three different homes. The first is a 900 sq ft home to help understand the impact to affordable housing. The other two homes are typical size homes and will include a 1700 sq ft home and a 2100 sq ft home.

The findings are based on prices obtained at a local electrical distributor and other verifiable resources as follows:

Combination AFCI	\$36.34
Standard Receptacle	\$.50
Tamper Resistant Receptacle	\$1.25
Standards GFCI Receptacle	\$8.00
Tamper Resistant Receptacle with GFCI	\$14.85

Results

900 sqft Home \$160.18 for 900 sq. ft. dwelling unit or \$.18/sq. ft. 1700 sqft Home \$205.27 for 1700 sq. ft. dwelling unit or \$.12/sq. ft. 2100 sqft Home \$241.36 for 2100 sq. ft. dwelling unit or \$.11/sq. ft

The 2008 NEC impact is minimal at less than a 20 cents per sq ft.

Respectfully

Jack Jamison, President

*Cos	*Cost Analysis for a new dwelling based on the minimum 2008 NEC requirements (900 Sq ft)	IEC requirem	ents (900	Sq ft)	
2008 NEC Code Section	Description of Code Requirement	Total Required Branch Circuit/Devices	Cost per 2005 NEC	Cost per 2008 NEC	Cost Difference
	GENERAL LIGHTING LOADS			が、 ご あずる機能	
220.12, Table 220.12 &	900 sq. ft. X 3VA = 2700 VA/120 Volts = 22.5 Amps = 1.5 or 2 circuits. 2 general purpose 15 Ampere circuits which includes family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar	2	\$3.25	\$36.34	\$33.09
	rooms or areas is required.	l	\$25.001	\$36.34	\$11.34
01001001000	DININGROOM				
210.52(A), 220.12, & 220.14(J)	Uning room circuit is required to be on one of the two required 20 amp small appliance branch circuits.		\$3.25	\$36.34	\$33.09
	KITCHEN				10000000000000000000000000000000000000
210.52(C), 210.11(C)(1), 220.14(J), & 406.11	2 Kitchen small appliance branch circuits supplying 2 Tamper Resistant GFCI Receptacles serving the kitchen countertop.	2	\$8.00	\$14.85	\$13.70
210.52(C), 210.11(C)(1), 220.14(J), & 406.11	2 Kitchen small appliance branch circuits supplying 6 Tamper Resistant receptacles located as required by 210.52(8)(1)	9	\$.50	\$1.25	\$4.50
化 () () () () () () () () () (BATHROOM				
210.52(D), 210.11(C)(3), 220.14(J), & 406.11	1 Tamper Resistant GFCI recptacle required for bathroom		\$8.00	\$14.85	\$6.85
	GARAGES		A CONTRACTOR OF THE PARTY OF TH	William Carlotten Sanda	
210.52(G), 220.14(J), & 406.11	I Tamper Resistant GFCI receptacles required for attached garages & unattached garages with power.	-	\$8.00	\$14.85	\$6.85
	GUI DOOR & BASEMENT RECEPTACIES			数 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
210.52(E), 220.14(J), & 406.11	2 Tamper Resistant/Weather Resistant receptacles (front & rear of Dwelling)	2	\$.50	\$7.03	\$13.062
210.52(G), 220.14(J), & 406.11	1 Tamper Resistant GFCI required for unfinished basements		\$8.00	\$14.85	\$6.85
	LAUNDRY		A Section of the Sect		
210.52(F), 210.11(C)(2), 220.14(J), & 406.11	1 Tamper Resistant GFCI Installed for the Laundry within 6 feet of laundry sink		\$8.00	\$14.85	\$6.85
210 500 1170 2010	GENERAL PROVISION RECEPTACIE OUTLETS				
220.14(J), & 406.11	which includes family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, surrooms, recreation rooms, closets, hallways, or similar rooms or areas	32	\$.50	\$1.25	\$24.00
				TOTAL	\$1091\$

Footnotes	This analysis is based on 2-wire home runs for branch circuits. The following consists of
 Standard AFCI breakers as required by the 2005 NEC Alternative method protecting outdoor receptacles fed from basement GFCI receptacle 	alternative wiring methods and their respective prices; 250ft NM-B-14/2/2-CU-WG\$114.66 250ft NM-B-14/3-CU-WG\$75.87 250ft NM-B-14/2-CU-WG\$54.13
\$160.18 for 900 sq. ft. dwelling unit is a cost of \$.18/sq. ft.	
Any extra wiring or devices above and beyond this is the choice of the builder and not mandated by the NEC. *Prices obtained from Leff Electric Supply (see attached quote), Lowes, & Home Depot	and not mandated by the NEC.

	Description of Code Requirement GENERAL LIGHTING-LOADS 1700 sq. ft. X 3VA = 5100 VA/120 Volts = 42.5/15 Amps = 2.8 or 3 circuits. 2 general purpose 15 Ampere circuits which includes family rooms, dining rooms, living rooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas is required. Dining room circuit is required to be on one of the two required 20 amp small appliance 1 \$33.25 \$33.25 \$35.30 \$35.30 \$35.35 \$35.35 \$35.35 \$35.35	Circuit/Devices 3 3	Cost per 2005 NEC \$3.25 \$25.001	Cost per 2008 NEC \$36.34 \$36.34	Cost
	sq. ft. X 3VA = 5100 VA/120 Volts = 42.5/15 Amps = 2.8 or 3 circuits. Impose 15 Ampere circuits which includes family rooms, dining rooms, living rooms, raries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas is required. DINING ROOM Microtit is required to be on one of the two required 20 amp small appliance branch circuits.	2	\$3.25	\$36.34	
	sq. ft. X 3VA = 5100 VA/120 Volts = 42.5/15 Amps = 2.8 or 3 circuits. Impose 15 Ampere circuits which includes family rooms, dining rooms, living rooms, raries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas is required. DINING ROOM Microtit is required to be on one of the two required 20 amp small appliance branch circuits.	2 2	\$3.25	\$36.34	
	rooms or areas is required. DINING ROOM on circuit is required to be on one of the two required 20 amp small appliance branch circuits. KITCHEN	1	\$25.001	\$36.34	\$66.18
		1 2	\$3.25	4000000000000000000000000000000000000	\$11.34
		2	\$3.25		
	KITCHEN	2	一般の ないないない	\$36.34	\$33.09
-		2			
	2 Kitchen small appliance branch circuits supplying 2 Tamper Resistant GFCI Receptacles serving the kitchen countertop.		\$8.00	\$14.85	\$13.70
210.52(C), 210.11(C)(1), 2 Kitchen small 220.14(J), & 406.11	2 Kitchen small appliance branch circuits supplying 8 Tamper Resistant receptacles located as required by 210.52(8)(1)	9	\$.50	\$1.25	\$6.00
	BATHROOM				
210.52(D), 210.11(C)(3), 220.14(1), & 406.11	1 Tamper Resistant GFCI recptacle required for bathroom	ı	\$8.00	\$14.85	\$6.85
	GARAGES				
210.52(G), 220.14(J), & 1 Tamper Resi 406.11	I Tamper Resistant GFCI receptacles required for attached garages & unattached garages with power.		\$8.00	\$14.85	\$6.85
	OUTDOOR & BASEMENT RECEPTACIES				
210.52(E), 220.14(J), & 2 Tamp 406.11	2 Tamper Resistant/Weather Resistant receptacles (front & rear of Dwelling)	2	\$.50	\$7.03	\$13.062
210.52(G), 220.14(J), & 406.11	1 Tamper Resistant GFCI required for unfinished basements	_	\$8.00	\$14.85	\$6.85
	ĽAUNDRY			DY STATE OF THE PARTY OF THE PA	
220.14(J), & 406.11	I Tamper Resistant GFCI Installed for the Laundry within 6 feet of laundry sink	•-	\$8.00	\$14.85	\$6.85
	GENERAL PROVISION RECEPTACIE OUTIETS			A CONTRACTOR OF THE PARTY OF TH	
220.14(J), & 406.11 sunt	which includes family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas	46	\$.50	\$1.25	\$34.50

TOTAL

*Cost	*Cost Analysis for a new dwelling based on the minimum 2008 NEC requirements (2100 Sq ft)	EC requireme	nts (2100	Sq ft)	
2008 NEC Code Section	Description of Code Requirement	Total Required Branch Circuit/Devices	Cost per 2005 NEC	Cost per 2008 NEC	Cost Difference
	GENERALLIGHTING LOADS				
220.12, Table 220.12 &	2100 sq. ft. X 3VA = 6300 VA/120 Volts = 52.5/15 Amps = 3.5 or 4 circuits. 2 general purpose 15 Ampere circuits which includes family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar	7	\$3.25	\$36.34	\$99.27
	rooms or areas is required.	-	\$25.001	\$36.34	\$11.34
210.52(A), 220.12, & 220.14(J)	Dining room circuit is required to be on one of the two required 20 amp small appliance branch circuits.		\$3.25	\$36.34	\$33.09
	KITCHEN			No. of the latest of the lates	マニスの 変数を
220.14(J), & 406.11	2 Kitchen small appliance branch circuits supplying 2 Tamper Resistant GFCI Receptacles serving the kitchen countertop.	2	\$8.00	\$14.85	\$13.70
210.52(C), 210.11(C)(1), 220.14(J), & 406.11	h circui requ	9	\$.50	\$1.25	\$6.00
10.00 (0.00)	BATHROOM				
220.14(J), & 406.11	1 Tamper Resistant GFCI recptacle required for bathrooms	7	\$8.00	\$14.85	\$6.85
010 1000 1000	GARAGES				
210.52(5), 220.14(J), & 406.11		_	\$8.00	\$14.85	\$6.85
	OUTDOOR & BASEMENT RECEPTACLES				1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
210.52(E), 220.14(J), & 406.11	2 Tamper Resistant/Weather Resistant receptacles (front & rear of Dwelling)	2	\$.50	\$7.03	\$13.062
210.52(G), 220.14(J), & 406.11	1 Tamper Resistant GFC! required for unfinished basements		\$8.00	\$14.85	\$6.85
(0)(0)(1)(0)(0)(0)(0)	LAUNDRY			The second second	
220.14(J), & 406.11	1 Tamper Resistant GFCI Installed for the Laundry within 6 feet of laundry sink	-	\$8.00	\$14.85	\$6.85
21052777	GENERAL PROVISION RECEPTACIE OUTLETS				
220.14(J), & 406.11	which includes tamily rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas	50	\$.50	\$1.25	\$37.50
			_	_	

Footnotes	This analysis is based on 2-wire home runs for branch circuits. The following consists of
 Standard AFCI breakers as required by the 2005 NEC Alternative method protecting outdoor receptacles fed from basement GFCI receptacle 	alternative wiring methods and their respective prices; 250ft NM-B-14/2/2-CU-WG
\$241.36 for 2100 sq. ft. dwelling unit is a cost of \$.11/sq. ft. Not a whole lot to pay for safety!	
Any extra wiring or devices above and beyond this is the choice of the builder and not mandated by the NEC. *Prices obtained from Leff Electric Supply (see attached quote), Lowes, & Home Depot	and not mandated by the NEC. ne Depot

\$241.36



LEFFELECTRIC

Leff/Akron Electric 711 Johnston St AKRON OH 44306

Fax: 330-379-9865





Quotation

QUOTE ĐĂTĒ	OLOTE	NUMBER
02/26/08	S1269:	245
ORDER TO: Leff/Akron Blectric		PAGE NO.
711 Johnston St AKRON OH 44306		1
330-379-980 <u>0</u>		

QUOTE TO: CASH ACCT TAXABLE (AKRON) 711 JOHNSTON STREET AKRON, OH 44306 SHIP TO: CASH ACCT TAXABLE (AKRON) 711 JOHNSTON STREET AKRON, OH 44306

CUSTONER MONBER	CUSTOMER P/O NUMBER	RELEASE NOVOER	SAL	ESPERSON
6056 post			House Acc	
WRITER	SHEP YEA	TELENS	SHIP DATE	FREIGHT ALLOWED
Pat Hinman		Cash On Deli	very 03/22/08	No
ORDER OTY	DESCRIPTION		Het Pro	Ext Prc
1ea LEV T532	0-I IVY NEMA5-15R DP	LX RCPT	125.00/c	1.25
lea LEV T759	9-I IVY 15A-125V GFC	I RCPT	1485.00/c	14.85
lea GE THQL1	115AF 15A PLUG IN AF	CI CB	36.34/ea	36.34
lea LEV TWR1	5-GY 15A WTR RST DLX	RCPT	703.13/c	7.03
				•



LEFFELECTRIC Leff/Akron Flectric

Leff/Akron Electric 711 Johnston St AKRON OH 44306

Fax: 330-379-9865





Quotation

CHOTE DATE	QUOTE	MANEER
02/26/08	S12692	261
ORDER TO:		PAGE NO.
Leff/Akron Electric	- 1	
711 Johnston St		
AKRON OH 44306	-	1
330-379-9800	İ	

QUOTE TO: CASH ACCT TAXABLE (AKRON) 711 JOHNSTON STREET AKRON, OH 44306 SHIP TO: CASH ACCT TAXABLE (AKRON) 711 JOHNSTON STREET AKRON, OH 44306

CUSTONER NUMBER	EUSTON	ER P/O NUMBER	P	OLI EASE ALMOSE			SALESPERSON
6056	post					House A	Account
WRIT	ER .	AIV THE		TER	45	SHIP DATE	FREIGHT ALLOWED
Pat Hinman				sh On I	Delivery	03/29/0	08 No
OFFICER CITY		DESCRIPTION				Net Pro	Ext Pro
1ea	P&S 1595-TR	WR 15A 125V RO	CPT	GFI		18.48/ea	18.48
1ea	P&S 3232-TR	WR 15A 125V WF	R RCPT	•		2.32/ea	2.32

Snyder, Mara

From: Sent:

Kish, David J [djkish@purdue.edu] Monday, May 11, 2009 11:26 AM

To:

Snyder, Mara

Subject:

the written comments I submitted on Thursday, May 7

Mara -

I realized that one item I mentioned at the public hearings for the electric and residential codes is not included with the written material I presented. In particular, I presented information that showed 30 fewer homes would be sold throughout the state if the price of the average home is increased by \$250. In my oral discussion, I suggested that if builders are willing to reduce their profit by \$250 (the assumed cost of complying with the 2008 NEC based on the Ohio IAEI data for a 2,100 sq ft home), they will once again be able to sell the homes. In this case, the impact of the new code provisions is simply 30 homes × \$250 less profit per home or \$7,500. Please add these e-mail comments to the information I submitted Thursday if it is possible to do so. Thank you.

-Dave Kish



Indianapolis, IN 46204

RETURN TO: INDIANA DEPARTMENT OF HOMELAND SECURITY CODE SERVICES SECTION 302 W. Washington Street Room W246

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Code Title	Edition
Indiana Electrical Code	2008
Section number and title	Page
210.8(B)(5)	70-48
Proponent	Title
David Kish, PE, Ph.D.	
Address	Phone
210 Floyd Ct., West Lafayette, IN 47906	(765) 491-4902
PROPOSED CODI	E CHANGE (Check One)
Change to read as follows Add to read as follows	Delete and substitue as follows Delete without substitution
Exception No 2 to (5): For receptacles located in than those covered under 210.8(B)(1), GFCI prot	
RE	EASON
Re-insert language from the model code that wa provides protection from ground fault shock haz (B)(2), e.g, sinks in janitor closets.	s deleted under 675 IAC17-1.8-9; this section are are are are are are are are are are
REVIEW REC	COMMENDATION
\pprove	
Disapprove	
approve as amended	
· ·	
urther Study	



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302 W. Washington Street Room W246

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Code Title		Edition
Indiana Electrical Code		2008
Section number and title		Page
406.8(B)(1)		70-261
Proponent	Title	
David Kish, PE, Ph.D.	<u> </u>	
Address		Phone
210 Floyd Ct., West Lafayette, IN 47906	E OLIANOE (OLIANO)	(765) 491-4902
	E CHANGE (Check One)	
☐ Change to read as follows ☐ Add to read as follows ☐	Delete and substitue as follows	Delete without substitution
Add a sentence to the end of section 406.8(B)(1) All 15- and 20-ampere, 125- and 250-volt nonloc type. Exception: 15- and 20-ampere, 125- through 250 subject to routine high-pressure spray washing weatherproof when the attachment plug is removed.	king receptacles shall be t 0-volt receptacles installed shall be permitted to have	d in a wet location and
R	EASON	
Re-insert language from the model code that wa insures receptacles are appropriate for the expe		7-1.8-20. This provision
REVIEW RE	COMMENDATION	
Approve		
Disapprove		
Approve as amended		
Further Study		



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Disapprove	Use second sheet for any mater	ial requiring more space.	
Section number and title 406.11 Title Toponent Title Toponent Title Toponent Title Toponent T	Code Title		Edition
Address Phone Phon	Indiana Electrical Code		2008
Proponent David Kish, PE, Ph.D. Address 210 Floyd Ct., West Lafayette, IN 47906 PROPOSED CODE CHANGE (Check One) PROPOSED CODE CHAN	Section number and title		Page
David Kish, PE, Ph.D. Address 210 Floyd Ct., West Lafayette, IN 47906 PROPOSED CODE CHANGE (Check One) Change to read as follows ☑ Add to read as follows ☐ Delete and substitue as follows ☐ Delete without substitution Tamper-Resistant Receptacles in Dwelling Units. In all areas specified in 210.52, all 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles. Re-insert language from the model code that was deleted under 675 IAC 17-1.8-21. Tamper- resistant receptacles in dwelling units are intended to increase safety for children. Consumer Product Safety Commission data suggest that over the past 10 years, 24,000 children have been treated in hospitals for injuries resulting from inserting objects into receptacles. Plastic outlet caps are often suggested as an alternative to tamper-resistant receptacles; a study conducted by the Temple University Biokinetics Laboratory found that 100% of children in this study, ages 2 to 4 removed the plastic outlet caps in less than 10 seconds. REVIEW RECOMMENDATION Approve Disapprove Approve as amended	406.11		70-261
Address 210 Floyd Ct., West Lafayette, IN 47906 PROPOSED CODE CHANGE (Check One) Change to read as follows Add to read as follows Delete and substitue as follows Delete without substitution Tamper-Resistant Receptacles in Dwelling Units. In all areas specified in 210.52, all 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles. Re-insert language from the model code that was deleted under 675 IAC 17-1.8-21. Tamper- resistant receptacles in dwelling units are intended to increase safety for children. Consumer Product Safety Commission data suggest that over the past 10 years, 24,000 children have been treated in hospitals for injuries resulting from inserting objects into receptacles. Plastic outlet caps are often suggested as an alternative to tamper-resistant receptacles; a study conducted by the Temple University Biokinetics Laboratory found that 100% of children in this study, ages 2 to 4 removed the plastic outlet caps in less than 10 seconds. REVIEW RECOMMENDATION Approve Disapprove Approve as amended	Proponent	Title	
Change to read as follows Add to read as follows Delete and substitue as follows Delete without substitution	David Kish, PE, Ph.D.		
PROPOSED CODE CHANGE (Check One) Change to read as follows Add to read as follows Delete and substitue as follows Delete without substitution Tamper-Resistant Receptacles in Dwelling Units. In all areas specified in 210.52, all 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles. Re-insert language from the model code that was deleted under 675 IAC 17-1.8-21. Tamper- resistant receptacles in dwelling units are intended to increase safety for children. Consumer Product Safety Commission data suggest that over the past 10 years, 24,000 children have been treated in hospitals for injuries resulting from inserting objects into receptacles. Plastic outlet caps are often suggested as an alternative to tamper-resistant receptacles; a study conducted by the Temple University Biokinetics Laboratory found that 100% of children in this study, ages 2 to 4 removed the plastic outlet caps in less than 10 seconds. REVIEW RECOMMENDATION Approve Disapprove Approve as amended	Address		Phone
Change to read as follows Add to read as follows Delete and substitue as follows Delete without substitution Tamper-Resistant Receptacles in Dwelling Units. In all areas specified in 210.52, all 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles. Re-insert language from the model code that was deleted under 675 IAC 17-1.8-21. Tamper- resistant receptacles in dwelling units are intended to increase safety for children. Consumer Product Safety Commission data suggest that over the past 10 years, 24,000 children have been treated in hospitals for injuries resulting from inserting objects into receptacles. Plastic outlet caps are often suggested as an alternative to tamper-resistant receptacles; a study conducted by the Temple University Biokinetics Laboratory found that 100% of children in this study, ages 2 to 4 removed the plastic outlet caps in less than 10 seconds. REVIEW RECOMMENDATION Approve Disapprove Approve as amended			(765) 491-4902
Reason Reason Re-insert language from the model code that was deleted under 675 IAC 17-1.8-21. Tamper-resistant receptacles in dwelling units are intended to increase safety for children. Consumer Product Safety Commission data suggest that over the past 10 years, 24,000 children have been treated in hospitals for injuries resulting from inserting objects into receptacles. Plastic outlet caps are often suggested as an alternative to tamper-resistant receptacles; a study conducted by the Temple University Biokinetics Laboratory found that 100% of children in this study, ages 2 to 4 removed the plastic outlet caps in less than 10 seconds. Review Recommendation Review Recommendation	PROPOSED COL	DE CHANGE (Check One)	
REASON Re-insert language from the model code that was deleted under 675 IAC 17-1.8-21. Tamper-resistant receptacles in dwelling units are intended to increase safety for children. Consumer Product Safety Commission data suggest that over the past 10 years, 24,000 children have been treated in hospitals for injuries resulting from inserting objects into receptacles. Plastic outlet caps are often suggested as an alternative to tamper-resistant receptacles; a study conducted by the Temple University Biokinetics Laboratory found that 100% of children in this study, ages 2 to 4 removed the plastic outlet caps in less than 10 seconds. REVIEW RECOMMENDATION Approve Disapprove Approve as amended	Change to read as follows Add to read as follows [Delete and substitue as follows	Delete without substitution
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RETURN TO: INDIANA DEPARTMENT OF HOMELAND SECURITY CODE SERVICES SECTION
302 W. Washington Street Room W246

Received Code

FOR OFFICE USE ONLY

Indianapolis, IN 46204

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Use second sheet for any material requiring more space.

Code Title		Edition
Indiana Electrical Code		2008
Section number and title		Page
422.52		70-261
Proponent	Title	
David Kish, PE, Ph.D.		
Address		Phone
210 Floyd Ct., West Lafayette, IN 47906		(765) 491-4902
	E CHANGE (Check One)	
☐ Change to read as follows ☐ Add to read as follows ☐	Delete and substitue as follows	Delete without substitution
interrupter protection.		
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₽E\/IE\/i/ DE	COMMENDATION	
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Approve as amended		
Further Study		



RETURN TO: INDIANA DEPARTMENT OF HOMELAND SECURITY CODE SERVICES SECTION

302 W. Washington Street Room W246 Indianapolis, IN 46204

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210.12(B)			70-49
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of 250.118 using me between the branch-	nere RMC, IMC, EMT or steel tal outlet and junction boxed -circuit overcurrent device a t the first outlet to provide p	s is installed for the portion in the first outlet, it shall	on of the branch circuit be permitted to install a
		EASON	
	rom the model code that wa		
	errupters (AFCIs) are able to	•	
	office shows that in the four		
	to electrical distribution. To		
content loss was \$1, attributed to these fil	221,866; one civilian death,	12 civilian injuries and 1 i	iretignter injury were
		`	250 for - 2400 for -t
	to comply with all 2008 NEC	- -	•
mortgage at 6% inter	er ultimately pays this cost rest.	- approximately \$1.50 per	month for a 30 year,
	REVIEW RE	COMMENDATION	
Approve			****
Disapprove			
Approve as amended			
Further Study			

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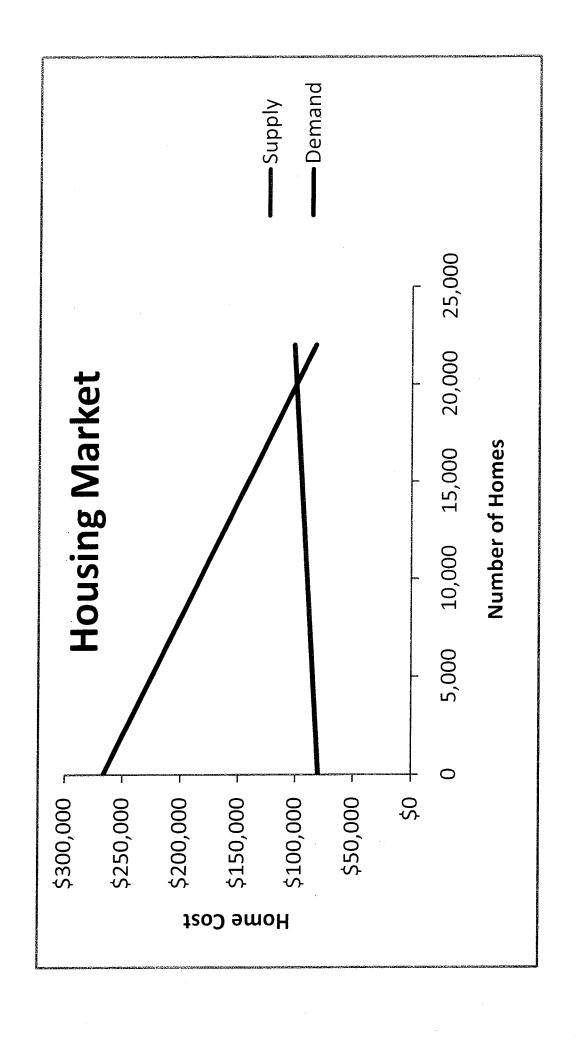
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Re-insert language from the model code that wa	s deleted under 675 IAC17	′-1.8-10.
Arc-Fault Circuit-Interrupters (AFCIs) are able to State Fire Marshall's office shows that in the four fires were attributed to electrical distribution. To content loss was \$1,221,866; one civilian death, attributed to these fires. Estimated total cost to comply with all 2008 NEC nome; the homeowner ultimately pays this cost mortgage at 6% interest.	r years from 2004 to 2007, otal property loss from the 12 civilian injuries and 1 fi provisions is less than \$2	225 residential structure ese fires was \$5,039,152, irefighter injury were 250 for a 2100 square foot
REVIEW REC	COMMENDATION	
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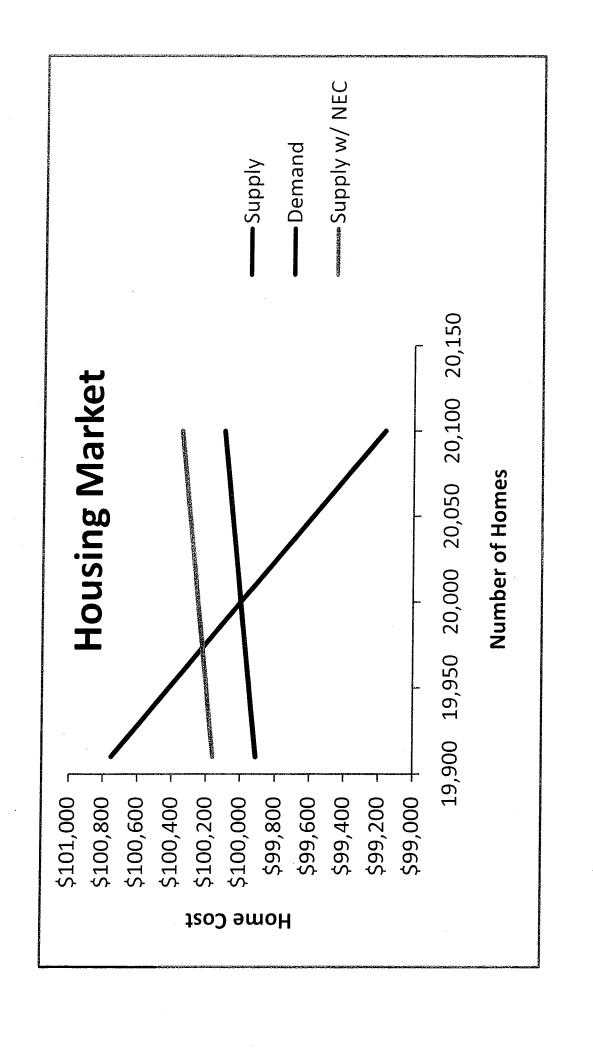
	Arcing	Fire Loss	\$847,262	\$377,355	\$822,118	\$802,029	\$2,848,764
	Total Loss		\$1,507,400 \$354,715 \$1,862,115 \$847,262	\$211,850 \$829,351	\$1,648,101 \$158,751 \$1,806,852	\$1,266,150 \$496,550 \$1,762,700	\$5,039,152 \$1,221,866 \$6,261,018 \$2,848,764
distribution HS web site)	Contents	Loss	\$354,715		\$158,751	\$496,550	\$1,221,866
es – electrical cs (available at ID	Property	Loss	\$1,507,400	\$617,501	\$1,648,101	\$1,266,150	\$5,039,152
e Fire Cause		injuries	1				1
Residential Structure Fire Causes – electrical distribution From IDHS Current Fire Service Statistics (available at IDHS web site)	ian Civilian Firefighter Firefighter	deaths					
	Civilian	injuries	2		1	6	12
	Civilian	deaths				1	Ţ
	Jo#	fires	59	50	43	73	225
	date		2007	2006	2005	2004	Total

Table − 1 Indiana Residential Structure Fire Causes 2004 - 2007

Leading Factors Contributing to Ignition, Electrical Fires, 2003-2005*	ires, 2003-2005*	
Factor Contributing to Ignition	% of fires	
Unspecified short-circuit arc	26.0%	
Short-circuit arc from defective, worn insulation	15.1%	
Arc from faulty contact, broken conductor	4.4%	
	45.5%	
* from FFMA Tonical Fire Denort Series Volume & Issue 7 / March 2008	Jarch 2008	
TOTAL PRIVITE OFFICE FIRST PRIVITE SCHOOL SCHOOL A CHAIR OF TOOLS A CHAIR OF TOOLS A CHAIR OF TOOLS A CHAIR OF TOOLS AND A CHAIR OF TOO		

 Table – 2
 Leading Factors Contributing to Ignition, Electrical Fires





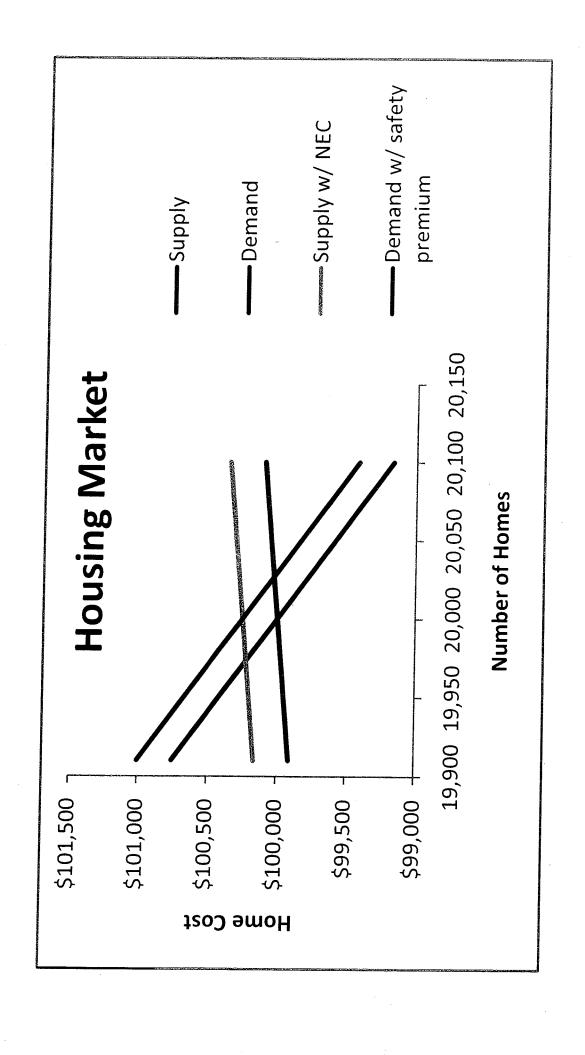
			1	420				4 1000	,
	Change in	Ouantity	(\$200 k house)	(Separation 2)	8	10	13	15	7
,	Change in	Quantity	(\$150 k house)	7	10	13	17	20)
	Loss of	Revenue	(I)	İ	\$300,000	\$400,000	\$500,000	\$600,000	
	Change in	Quantity	(\$100 k house)	10	15	20	25	30	
	Elasticity"			-0.2	-0.3	-0.4	-0.5	9.0-	

Table − 3 Elasticity data

	\$250 30 years 6%	50
	\$2; 30,	\$1.50
	Expense to Homeowner length of mortgage Interest Rate	Monthly Expense
Savings Summary	\$800,000 (\$600,000) \$200,000	
	Potential savings from fewer arcing fires Lost revenue from home sales Potential Net Savings	

ⁱ Hanushek, Eric A. and John M. Quigley, "What is the Price Elasticity of Housing Demand?" *The Review of Economics and Statistics*, Volume 62, Issue 3 (Aug., 1980), 449-454.

ii Congressional Budget Office, "Housing Prices, Housing Choices and Military Housing, Appendix B," October 1998.



Testimony of Don Iverson National Electrical Manufacturers Association To the Department of Homeland Security LSA#09-140/ LSA#09-139 May 7, 2009

My name is Don Iverson, and I am the Midwest Field Representative, representing the National Electrical Manufacturers Association. NEMA is the trade association of choice for the electrical manufacturing industry. Founded in 1926 and headquartered near Washington D.C., its approximately 450 member companies manufacture products used in the generation, transmission and distribution, control and end-use of electricity.

Electrical installations and inspection laws should provide safeguarding of the public from personal and property hazards. No unnecessary restrictions should be imposed on the distribution, installation and use of electrical products that conform to practical standards of safety and protection. NEMA believes that this can best be accomplished by direct adoption of the National Electrical Code by government entities.

I am here today to encourage the State of Indiana to adopt the 2008 NEC without amendments.

The National Electrical Code is the country's most universally adopted installation code, with more than 100-year track record of providing electrical safety for millions of Americans through regular and thorough revisions that incorporate the latest in safety technology- with minimal cost impact.

In Article 90.1(a) of the NEC it talks about Practical Safeguarding. And I quote:" The purpose of this code is the practical safeguarding of persons and property from hazards arising from the use of electricity".

The NEC revises on a 3 year cycle and employs a thorough public process and review by representatives of the fire and electrical safety community, as well as representatives from the National Association of Home Builders (NAHB).

To date, more than 20 states have adopted the 2008 National Electrical Code with the expanded AFCI requirements intact, and several more are engaged in the process at this time. If the State of Indiana adopts the Rules as published, Indiana will fall towards the bottom of the country in Electrical Safety.

Indiana will be the ONLY State in the country to NOT have "AFCI", Tamper Resistant Receptacles and the expansion of Ground fault circuit's interrupter protection in residential construction. This will hinder the citizens and unsuspecting children of Indiana from the latest fire safety technology of today.

To achieve complete 2008 compliance for residential structures- which includes (AFCI) enhanced circuit protection for circuits within the home, protection for children in the form of tamper resistant receptacles and additional GFCI protection- a home owner would incur a cost of \$160-\$240 for an average home according to a comprehensive cost analysis conducted by the Ohio chapter of the International Association of Electrical Inspectors (IAEI).

The relatively insignificant cost increase proves that safety, not economics, needs to be the driving force in establishing new building code requirements. Some organizations, including the NAHB, continue to argue over the cost of new safety requirements. Those organizations will argue that building a home with the most up-to-date safety standards in place will make homes unaffordable. Yet they continue to offer an array of expensive upgrades to their customers in the form of marble countertops, pricey kitchen cabinets and other "non-safety" additions that far exceed the numbers shown above. These aesthetic upgrades may increase the overall value of the home, but provide little to no protection against electrical fires.

It is clear there is strong support for the adoption of the 2008 NEC without amendments in Indiana, as evident by the fire and electrical safety advocates present here today. Additionally, AFCI expansion has the full support of the national fire and electrical safety organizations, including the National Fire Protection Association (NFPA), the National Association of State Fire Marshals, the International Association of Electrical Inspectors (IAEI), and the U.S. Consumer Product Safety Commission (CPSC). In fact, the CPSC believes that the AFCI device, if installed in all homes, could prevent more than 50 percent of electrical fires that occur annually.

In conclusion, NEMA supports the adoption of the 2008 National Electric Code (NEC) without amendments by the State of Indiana. The adoption of the 2008 NEC would provide a great benefit to the citizens of Indiana by increasing the electrical safety of new buildings constructed in the state. NEMA's recommendation is that you adopt the 2008 NEC without amendments and put Indiana in the forefront of safety to ensure the well being of the citizens of Indiana.

Thank you for the opportunity to speak in this matter.

INHA/RVIC ATTACHMENT 5

Residential Code Committee

Comprised of three groups with 8 seats in each catagory:

- Building Officials
- Builders
- · Other Interested Parties

A total of 24 individuals

This even distribution of people helps prevent domination by any specific group.

The **average** number of years of experience is realistically close to 20 years each. That comes to **480 years** of home construction and inspection experience.

I take exception with the comments from more than one Electrical committee member that they, the electrical people, know more about home construction than the Residential Committee.

I would encourage the Commission to:

- draft formal rules for the make up of all code revision committees to be modeled after the current Residential Code Committee.
- Instruct all code committees to refer residential code requirements to that committee for their review.

The International Code Council is currently trying to draft rule revisions to prevent future abuse of their code development process. Our Indiana Commission needs to do likewise for the various code committees in Indiana.

On the specific electrical code issues:

- Both arch fault prevention devices and tamper resistant recepts are available to any potential home buyer today. There are no restrictions that prevent the home buyer from requesting their inclusion in their new home should they so choose.
- These devices can also be installed at a later date should the home be sold to a family who wishes to add these.
- To make these mandatory on every home buyer, regardless of whether or not their family includes children, is overly regulatory.
- Many claims have been made concerning both these devices. Little can be substantiated.
- Projected costs for these devices also vary a great deal.
- I would urge the Commission to leave the decision on these devices to each home buyer.



May 6, 2009

Attn: Mara Snyder: Indiana Department of Homeland Security Code Services Section Indiana Government Center South 302 West Washington Street, Room E243 Indianapolis, Indiana 46204.

Schneider Electric / Square D is a leader in supporting safe and energy efficient electrical installation solutions around the world. We are a proud corporate citizen of the state of Indiana with manufacturing and engineering facilities located in Peru (Square D), Huntington (Square D), Indianapolis (Pelco), Fishers (Juno / Indy Lighting), and Chicago – Crown Point (Schneider Electric).

Schneider Electric / Square D Position

Schneider Electric / Square D supports the state of Indiana moving forward with the adoption of the 2008 NEC as we actively participated in all aspects of reviewing the 2008 NEC on the State Electrical Advisory Committee. The 2008 NEC and industry developed amendments for the state of Indiana as recommended by the State Electrical Advisory Committee is not the document that is before us today found in LSA Document #09-139 and LSA Document #09-140. Significant safety provisions have been removed which include Ground-Fault Personnel Protection (GFCI) for sinks in commercial buildings (schools), Tamper-Resistant Receptacles for homes, Arc-Fault Circuit Protection (AFCI) for homes and GFCI protection for drinking fountains (schools).

Therefore, Schneider Electric / Square D stands in opposition of LSA Document #09-139 and LSA Document #09-140 being adopted by the Indiana State Fire Prevention & Building Safety Commission as proposed. The statistics are overwhelmingly in support of the need for Indiana to adopt the 2008 NEC and amendments as set forth by the State Electrical Advisory Committee.

Indiana Electrical Fire Statistics at a Glance

In 2007, the U.S. Fire Administration notes that 84% of civilian fire deaths occur in residences and in 2005 Indiana ranked 32nd in the country, well below average. There were nearly 4,300 residential fires and 100 deaths in Indiana during 2007. National statistics establish that over 550 residential electrical fires occur in Indiana annually resulting in an average rate of 13 deaths a year within the state.



by Schneider Electric

Flawed Fiscal Impact Process

We recognize the legislative regulations that require the development of a fiscal impact statement for a proposed rule changes. However, the State Electrical Advisory Committee which reviewed and supported the adoption of the 2008 NEC with amendments did not participate in the development of the fiscal impact of the rule or have input to the fiscal impact document. The only conclusion that can be drawn is that items identified by the Indiana Code Services Department as adding cost to construction were removed from the Advisory Committee's proposed text to ensure a net \$0 impact for the rule to avoid any resistance from the State Budget Agency.

This raises numerous questions:

- 1) Were revisions in the 2008 NEC which are cost improvements or a positive impact to a fiscal impact statement considered to offset other impact?
- 2) Why were revisions with fiscal impact found within the code, beyond those removed, left in the proposed rule?
- 3) How were the negative fiscal impact values established? Product and installation cost only? Was property loss and life loss prevention considered? Those with a loss due to a lack of implementing the rule are impacted as well.
- 4) Items of safety that fall well within the fiscal impact value of not needing review by the State Budget Agency were removed as well. Why?
- 5) Did the volume of construction play a role in determining fiscal impact? If so what year was used? 2007 permits? 2008 permits? Or projected 2009 permits? 2008 permits are at least 40% below those of 2007 and if this is a fiscal impact for the first year following adoption of the rule, the first quarter of 2009 would indicates over a 65% reduction from the values in 2007.
- 6) Who is considered a regulated body of impact? Square D in Peru is fiscally impacted negatively as that plant manufacturers panelboard assemblies with AFCIs. The insurance industry who is paying for losses for the 550 electrical house fires annually in Indiana are impacted as well. Reducing their losses reduces premiums for all residents not just the new homes. If you assign a value of saving five houses out of 550, there is a positive fiscal impact of \$500,000. What if you save a life?
- 7) Is the homeowner truly the only regulated person here or is it the entire supply chain? You can conclude the homeowner is the final regulated body here. If that is the intent of the law, then taking the increase per house and multiplying by the number of permits for 2009 and conservatively amortizing over 15 years, the fiscal impact is well under the fiscal impact ceiling value and protection has been achieved for the residences and for the largest investment an Indiana citizen makes.

The Indiana Code Services Department needs to utilize the State Electrical Advisory. Committee in order to develop an appropriate fiscal impact statement for submission to the Budget Committee before these proposed rules are moved forward without blindly omitting



by Schneider Electric

enhanced safety aspects. Recent industry discussion surrounding the Pool Code Advisory Committee has clearly has demonstrate the opportunity for that committee to establish a position on the fiscal impact and the residential committee during the first meeting clearly indicated they would review and provide direct input on the fiscal impact statement.

Schneider Electric / Square D has participated in code adoption activity across the country for a number of years. We can without reservation state that if Indiana moves forward with adopting the rules as proposed, Indiana will rank at the bottom of electrical safety protection in residential construction across the country. Indiana would be the only state to not adopt tamper resistant receptacles, and some form or AFCI protection which ranges from the bedrooms only to the language found in the 2008 NEC.

Conclusion

Schneider Electric / Square D urges the State Fire Prevention & Building Safety Commission to **not** adopt LSA Document #09-139 and LSA Document #09-140 without appropriate safety requirements for the citizens of the state of Indiana and accurate fiscal impact statements.

We recommend the Indiana Code Services Department rescind the proposed documents and schedule a meeting of the State Electrical Advisory Committee to permit the electrical committee to provide accurate fiscal impact of the rules as recommended by the committee.

Sincerely,

Alan Manche, PE

Director, Industry Standards Schneider Electric / Square D

Phone: (859) 245-7925

Email: alan.manche@us.schneider-electric.com

Cc:

Robin Singleton – Plant Manager – Peru, IN Jim Harden – Plant Manager – Huntington, IN

Kevin Fagan – Vice President Manufacturing – Fishers, IN Loyd Palmer – Vice President Manufacturing Operations Jared Wayne – Vice President Engineering – Indianapolis, IN Jim Pauley – Vice President Industry & Government Relations

James Walker – City of Peru Mayor Steve Updike – City of Huntington Mayor

Dear Mr. Hannum:

As an Indiana resident, I am writing in support of important safety provisions which the 2008 edition of the National Electrical Code (NEC) offers, and I strongly encourage the Commission to adopt these provisions which will benefit homeowners in Indiana for decades to come.

One of the most important lifesaving provisions in the new Code relates to Arc Fault Circuit Interrupters (AFCIs). Arcing faults are the primary source of ignition in an estimated 30,000 home fires each year in the United States. These fires annually kill and injure hundreds of people and cause more than \$750 million in direct property damage. This technology is endorsed by the United States Fire Administration, the National Fire Protection Association, the Consumer Product Safety Commission, and the National Association of State Fire Marshals, as well as other safety and fire fighting organizations across the country. The U.S. Department of Housing and Urban Development's Healthy Homes report lists the lack of AFCIs among the primary residential hazards associated with burns and fire-related injuries. With such overwhelming evidence to support the efficacy of AFCIs, a delay in adopting the 2008 National Electrical Code will result in fires and fatalities that could have otherwise been prevented in Indiana.

The 2008 NEC also contains important provisions relating to tamper-resistant outlets. Data collected by the Consumer Product Safety Commission (CPSC) shows that in a ten year period more than 24,000 children had been treated in hospitals for burns and other injuries sustained from contact with electrical outlets. The vast majority of these incidences involved children under the age of six who should have been protected from this type of electrical danger. The advantage of tamper-resistant outlets is that they provide permanent, automatic and continuous protection of children.

I strongly encourage you to support the adoption of the 2008 National Electric Code with its lifesaving AFCI and TRR provisions intact so that communities in Indiana can start benefiting now from the protection they offer.

Best regards,

Name:

Wayne Ogradous Ki

Organization:

TERAN Electric

Address:

Wayne Og vodowski

LOWELL IN 46356

April 2009

ATTACHMENT &

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

Dear Mr. Hannum:

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Best regards,	
Name:	Edwin Gonzaler
Organization:	
Address:	4736 Hohman
	Hammond M
	Edvir Donglor

April 2009

ATTACHMENT 9

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

Dear Mr. Hannum:

As an Indiana resident, I am writing in support of important safety provisions which the 2008 edition of the National Electrical Code (NEC) offers, and I strongly encourage the Commission to adopt these provisions which will benefit homeowners in Indiana for decades to come.

One of the most important lifesaving provisions in the new Code relates to Arc Fault Circuit Interrupters (AFCIs). Arcing faults are the primary source of ignition in an estimated 30,000 home fires each year in the United States. These fires annually kill and injure hundreds of people and cause more than \$750 million in direct property damage. This technology is endorsed by the United States Fire Administration, the National Fire Protection Association, the Consumer Product Safety Commission, and the National Association of State Fire Marshals, as well as other safety and fire fighting organizations across the country. The U.S. Department of Housing and Urban Development's Healthy Homes report lists the lack of AFCIs among the primary residential hazards associated with burns and fire-related injuries. With such overwhelming evidence to support the efficacy of AFCIs, a delay in adopting the 2008 National Electrical Code will result in fires and fatalities that could have otherwise been prevented in Indiana.

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Best regards,	///
Name:	Wayne aveanson
Organization:	HAMMOND CODE ENFORCEMENT
Address:	5925 Calumet ave
	Hammond, In
	46370

Dear Mr. Hannum:

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I strongly encourage you to support the adoption of the 2008 National Electric Code with its lifesaving AFCI and TRR provisions intact so that communities in Indiana can start benefiting now from the protection they offer.

Best regards,

Name:

Organization:

Address:

April 2009

ATTACHMENT 11

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

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Name: Name: A + REHAB, TUC.

Address: 1// CAMELOT MANOR

PORTAGE, TU 46368

April 2009

ATTACHMENT 12

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

Dear Mr. Hannum:

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Best regards,	
Name:	GEORGE H. MOSE
Organization:	LAKE COUNTY RANCOMMISSION; INSPECTOR
Address:	2293 N. MAIN STREET
	CROWN POINT, INDIANA 46307
•	PH. 755-3700 FAX 755-3712

April 2009

ATTACHMENT 13

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

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Best regards,	
Name:	ROBERT BAKALAR ROBOLL
Organization:	LAKE COUNTY PLAN COMMISSION, BUILDING INSPECTOR
Address:	2293 N. MAIN ST
	CROWN POINT, IN
	46307

Dear Mr. Hannum:

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Best regards,

Name:

Organization:

Address:

City of Hammone

714-165ts APT. 1-N

nmord IN. 46324

15

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

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Best regards,	^	- 11
Name:	Daniel Daviel	Allow
Organization:		
Address:	5519 Begll Hammond	

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Best regards,	
Name:	STEVE JOHNSON
Organization:	LAKE AREA ELECTRIC
Address:	7505 E. 129 THAVE
	CROWN POINT IN.
	46307

ATTACHMENT 17

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

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Name: Justin Karstensen

Organization: Karstensen Electrical Construction

Address: 1334 W. New Monce Rd

_crete_IL (00417

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Best regards,	
Name:	Robert Allen
Organization:	
Address:	2485 spacer of
	Lake Station IN
	46405

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Best regards,

Name:

Organization:

Address:

Bellow Eletwi

6809 Columbia au

Hammond, An. 46324

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Best regards,

Name:

Organization:

Address:

TAET/ANK AMERICAN

S/1912 S/. WOOD TILD 4/22

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Best regards	γ	
Name:	Juthory H16	63
- 1)our cilma	
Address:		
rudross.		

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Best regards,

Name:

Organization:

Address:

Thrutopher A. Lesniewski AMM Electrical Contracturo INC-

8006 Frederick Ave

April 2009

ATTACHMENT 23

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

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Best regards,	, 2
Name:	KURT KOCH
Organization:	BUKDING COMMISSIONER
Address:	5925 BE CALOMET AUE.
	HAMMOND IN 46320

April 2009

ATTACHMENT 24

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

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Best regards,	0 1
Name:	Andrea Edwaros
Organization:	
Address:	5925 Calumet Ave.
	Hammons, IN 46320

April 2009

ATTACHMENT 25

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

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Best regards,	0
Name:	DON NOME
Organization:	City or HAMMON
Address:	5925 CAZONEO
	/Amnoy / Wilney 44320
	·

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Name: James Callaham
Organization: Cety of Hammond
Address: 5925 Calumet Luce
Hammand In. 46320

April 2009

ATTACHMENT 27

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

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One of the most important lifesaving provisions in the new Code relates to Arc Fault Circuit Interrupters (AFCIs). Arcing faults are the primary source of ignition in an estimated 30,000 home fires each year in the United States. These fires annually kill and injure hundreds of people and cause more than \$750 million in direct property damage. This technology is endorsed by the United States Fire Administration, the National Fire Protection Association, the Consumer Product Safety Commission, and the National Association of State Fire Marshals, as well as other safety and fire fighting organizations across the country. The U.S. Department of Housing and Urban Development's Healthy Homes report lists the lack of AFCIs among the primary residential hazards associated with burns and fire-related injuries. With such overwhelming evidence to support the efficacy of AFCIs, a delay in adopting the 2008 National Electrical Code will result in fires and fatalities that could have otherwise been prevented in Indiana.

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I strongly encourage you to support the adoption of the 2008 National Electric Code with its lifesaving AFCI and TRR provisions intact so that communities in Indiana can start benefiting now from the protection they offer.

Name: Unitual Sum
Organization: What Address: 5975 Calumet and
Hampe 1N

April 2009

ATTACHMENT 28

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

Dear Mr. Hannum:

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Best regards,	A = A = A = A = A = A = A = A = A = A =
Name:	MICHAEL JAWSON
Organization:	City of GARY DEPT.
Address:	401 Broadway
	GARY IN. 46402
	Room 307

April 2009

ATTACHMENT 29

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

Dear Mr. Hannum:

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	•		
Best regards,			
Name:	JESSE J. BUTLER		
Organization:	CLTY OF GARY BUILDING	· DEPT.	7 60
Address:	400 BRONDWAY	ELECTRICAL	this PECTON
	SUITE 307		BOWEN
-	GNRY, Dw. 46402	MA	BEOWE N AY 4 2009
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April 2009

ATTACHMENT 30

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

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Best regards,		
Name:	DOUID R. STALF, CHIEF FLECTRICAL INSPECTOR	-
Organization:	CITY OF GARS	
Address:	401 BEDAOWAY ROOM 307	
	GARY	IS
•	INDIANO 46402	

April 2009

ATTACHMENT 31

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

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Best regards,	
Name:	Ken Finke
Organization:	KAAS Sivices
Address:	8024 Richard St
	Highland, IN 46322
	-

32

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

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Best regards,	Dovet Hamm
Name:	- Trans
Organization:	HAMMOND FICE STAT
Address:	6110 COLUMET PLE
	HORMMOD IXI
	46390

April 2009

ATTACHMENT 33

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

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Best regards,	
Name:	
Organization:	HAMMOND FIRE DEPT
Address:	6110 COHUMET ACE
	LE againsof
	4637

April 2009

ATTACHMENT 34

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Dear Mr. Hannum:

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Best regards,	
Name:	Spirit Moreres
Organization:	HAMMOUD FIRE DEPT
Address:	6110 CALOTTET AF
	NI OLOMBAH
	46320

April 2009

ATTACHMENT 35

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

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Best regards,	
Name:	William a Rich
Organization:	HAMMOND FORE DEPT
Address:	6110 CALDMET FOR
	HAMMOND IN
	46320

April 2009

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Best regards,	
Name:	Jeffry M. Marsach
Organization:	HAMPOND FIRE DEDT
Address:	6110 CALVINET ALE
	LAT COGRAPHI
	4/200

April 2009

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I strongly encourage you to support the adoption of the 2008 National Electric Code with its lifesaving AFCI and TRR provisions intact so that communities in Indiana can start benefiting now from the protection they offer.

Best regards,

Name: \angle

Organization:

Address:

COLLO COLLONET RESE

46320

April 2009

ATTACHMENT 38

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 West Washington Street, Room W246 Indianapolis, IN 46204

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Best regards,	
Name:	Diane L. Brythi
Organization:	HAMMAND FIRE DEPT
Address:	6110 CALLMET PETE
	HAT OLOMAN
	4/200

MAY 7, 2009

Mr. David Hannum Commission Chair Fire Prevention and Building Safety Commission 402 W. Washington St. Room W 246 Indianapolis, IN 46204

Dear Mr. Hannum,

The very first article of the National Electrical Code (NEC), Article 90.1 (A) states: "Practical Safeguarding: The purpose of this code is the practical safeguarding of persons and property resulting from hazards arising from the use of electricity." Part (B) of this section expands the concept and states "This code contains provisions that are considered necessary for safety."

The development of each edition of the NEC is broad based and democratic. All individuals are encouraged to collaborate for proposal of code changes or modifications. Code proposals are reviewed and considered by experts and laypersons alike throughout our industry prior to adoption by open vote. Considerations to changing or modification of the electrical code should not be taken lightly.

I believe the decision to delete the requirements for AFCI Protection and Tamper Resistant Receptacles is short sighted and does not serve our citizens well. Arc fault circuit interrupter technology was developed over ten years ago at the direct request of the Consumer Product Safety Commission. The Commission believes the number of fire related deaths can be reduced by AFCI technology and so do I. AFCI protection requirements were deleted from the 2005 Electrical Code. The Proposed Rule currently before you also deletes the AFCI requirements.

One has to wonder why these requirements are deleted. These are fire prevention devices. Smoke detectors warn of a developing fire in progress. AFCI technology is designed to prevent many electrical fires from ever starting. Unfortunately, we have been down this road before. When GFCI Protection was first introduced, there were many who did not see the need for that type of equipment. The most common argument was "We've lived here for forty (or fifty or sixty) years and never had any problems!" Currently, GFCI protection is mandatory and used in homes, businesses and recreation areas as required, it is understood to be an essential protective device. But it is not the last forty years I'm concerned about; it's the next forty years.

I have been an Electrical Inspector with the City of Gary Building Department for twenty-four (24) years. I have inspected thousands of homes and apartments. Some have AFCI circuit breakers installed. I have never received a complaint from a homeowner nor a request to investigate a problem with "false" AFCI tripping. Not one.

Earlier this year our Fire Protection Bureau requested that I review a fire scene at a house in Gary. The fire started in the bedroom while the owner of the house was at work. The source of the fire is believed to have been a floor lamp. A small child and the babysitter died in the fire.

The mother will have to live with a special horror for the rest of her life. AFCI protection may well have prevented this tragedy.

Some years ago while inspecting a local Family and Social Services Office, I watched a toddler diligently trying to insert Mom's car keys into a wall receptacle. The mother was seated just steps away and did not see what was about to happen. I stopped the child and spoke with the mother. Tamper Resistant Receptacles protect children from this type of danger automatically.

In conclusion, I would like to thank the commission for the opportunity to express my views on the Proposed Indiana Electric Code 2009 Edition (LSA Document #09-140). I strongly urge the Commission to adopt the Electric Code as originally drafted by the Code Review Committee and to provide the necessary corrections to the 2005 Indiana Residential Code to assure consistency.

We now have the ability to prevent electrical fires arising from arcing faults. We have the opportunity to automatically protect small children from electrocuting themselves. Requirements for both have been widely adopted around the country. Ultimately, people in Indiana will want to know "Why not here?"

With respect,

David R. Stalf

Chief Electrical Inspector

City of Gary

Member Indiana Code Review Committee

Member International Association of Electrical Inspectors-Indiana Chapter

ATTACHMENT 40

From: Sent:

Tom.Roy@pass-seymour.com Monday, May 11, 2009 11:02 AM

To:

Snyder, Mara

Subject:

Indiana 2008 NEC Adoption

Attachments:

IN 051109.pdf

Ms. Snyder

I'm writing you in response to the May 7th electrical code hearing. I learned that you would consider written requests on the 2008 NEC code and in particular section 406.11 requiring tamper-resistant receptacles to protect children form electrical injuries. Please see the attached letter with some back ground information you may find interesting.

(See attached file: IN 051109.pdf)

Thank you for your time and consideration.

Regards,

Thomas Roy Sr. Product Line Manager Pass & Seymour / Legrand (315) 468-8021

This email, and any document attached hereto, may contain confidential and/or privileged information. If you are not the intended recipient (or have received this email in error) please notify the sender immediately and destroy this email. Any unauthorized, direct or indirect, copying, disclosure, distribution or other use of the material or parts thereof is strictly forbidden.

Pass & Seymour

[] legrand

P.O. Box 4822 Syracuse, NY 13221 Phone (800) 776-4035 / Fax (315) 468-5034 www.passandseymour.com

Date: May 11, 2008

Subject: 2008 NEC 406.11 Tamper-Resistant Receptacles

Dear Ms. Snyder,

I'm writing you to go on record in support of the 2008 NEC code adoption including section 406.11 in the state of Indiana and to provide some background information. This is an important advancement in child safety that has been unanimously adopted in all 31 states that have evaluated the new code.

CPSC data form a 10 year study (1991 to 2001) show that over 24,000 children, about 7 per day are treated in emergency rooms for injuries resulting from inserting objects into electrical outlets. The 2008 National Electrical Code® (NEC) is targeting a reduction of these injuries with section 406.11, which states that all 125-volt, 15- and 20-ampere electrical receptacles installed in residential dwellings must be listed as tamper-resistant receptacles. This requirement offers a reliable, effective means to protect children form needless electrical injuries.

Tamper-resistant receptacles feature a built-in shutter systems that prevent foreign objects from touching electrically live components, but plugs can be inserted and removed as usual, with out additional force. Unlike plastic outlet caps, which according to a Temple University study can be removed easily by children, tamper-resistant receptacles offer automatic, permanent protection against electrical burns.

The new requirements of 406.11 set a proactive, logical standard that demands the most reliable protection available. This is a proven technology; Hospitals have required these devices in pediatric wards for more than 20 years.

Projected compliance costs are minimal. The IAEI estimates that tamper-resistant receptacles would add about \$50 to the cost of a new home's electrical system.

We have the opportunity to spare thousands of Indiana children visits to the emergency room. Please feel free to contact me with any questions or visit the following websites to learn more about tamper-resistant receptacles, child safety statistics and NEC code details. www.childoutletsafety.org.

www.passandseymour.com.

Best Regards,

Thomas Roy Sr. Product Manager Pass & Seymour Legrand (315)468-8021

Thomas Kay



American Burn Association

625 N. Michigan Avenue, Ste. 2550 Chicago, IL 60611

Voice (312) 642-9260 • Fax (312) 642-9130 e-mail: info@ameriburn.org

April 22, 2009

PRESIDENT G. Patrick Kealey, MD Iowa City, Iowa (319) 356-3221

PRESIDENT-ELECT Robert L. Sheridan, MD Boston, Massachusetts (617) 726-5633

1st VICE-PRESIDENT Sidney F. Miller, MD Columbus, Ohio (614) 293-5710

2nd VICE-PRESIDENT Mary-Liz Bilodeau, ACNP-BC Boston, Massachusetts (617) 726-8766

SECRETARY Palmer Q. Bessey, MD New York, New York (212) 746-0242

TREASURER Nicole S. Gibran, MD Seattle, Washington (206) 744-3140

PROGRAM CHAIR Tina L. Palmieri, MD Pacramento, California 6) 453-2050

AT-LARGE MEMBERS Ronald J. Siarnicki, Fire Chief Crofton, Maryland (410) 721-6212

Mary Jo Baryza, PT, MS, PCS Boston, Massachusetts (617) 371-4749

Maywood, Illinois (708) 216-4041

(216) 778-4899

PAST PRESIDENTS Richard J. Kagan, MD Cincinnati, Ohio (513) 872-6210

David G. Greenhalgh, MD Sacramento, California (916) 453-2050

Gary F. Purdue, MD Dallas, Texas (214) 648-2041

Executive Director John A. Krichbaum, JD

Jimmy Parks, RN, MS Chair, ABA Burn Prevention Committee

Indiana Department of Homeland Security Legal and Code Services Branch Indiana Government Center South 302 West Washington Street Room E243 Indianapolis, IN 46204

Dear Raleigh Kouns:

Next month, you will consider the adoption of the 2008 National Electrical Code which includes a requirement that all new home construction use tamper-resistant electrical receptacles. This requirement was included in the new national code after considerable research and thoughtful discussion.

The purpose of the requirement is to protect very young children from electrical burn injuries. These children are too young to learn not to stick keys, hairpins and other objects into electrical outlets. At this very early age, in fact, we are encouraging children to learn about shapes—to learn that round pegs fit in round holes and square ones in the square holes. It is unrealistic to expect them to discriminate between a toy and an electrical outlet. We certainly don't want them to learn this by trial and error.

Adopting this code will contribute significantly to reducing these disfiguring and disabling electrical injuries. It is critically important that the wording of this code not be changed from the current mandatory provision to a permissive statement. Adopting this code will reduce the suffering and pain that is the human cost of these injuries and will lessen the health care costs associated with these injuries.

On behalf of burn surgeons, nurses, and other members of the burn care team and the patients they serve, the American Burn Association urges your state to adopt the 2008 National Electrical Code requirement that all new homes use tamper-resistant electrical Kathy G. Supple, MSN, CCRN receptacles. Idaho has the opportunity to play a leadership role in adopting this provision; thereby encouraging similar action in other states.

Tammy L. Coffee, MSN, ACNP If you would like further information on this issue, please contact Jimmy Parks, RN, MS, Chair of the ABA Burn Prevention Committee, at The Burn Center at Arkansas Children's Hospital, 800 Marshall Street, Slot 210, Little Rock, AR 72202 (501-607-4374; fax: 501-978-6411; ParksJC@archildrens.org).

We thank you for your time and consideration of this correspondence.

John A. Krichbaum, JD Executive Director, ABA

John A. Mulbaum

Associate Executive Director Susan M. Browning, MPH

203 Cooper Circle Peachtree City, GA 30269 Phone: (770) 631-2100 Fax: (770) 631-2106

5/8/2009

Mara Snyder Director of Legal and Code Sevices For Homeland Security



Dear Ms. Snyder:

As I understand it, you are involved in the decision-making process in all issues revolving around the adoption of the 2008 National Electrical Code for the state of Indiana. Further, it is also my understanding that the discussions have involved a decision that includes both AFCI protection and Tamper Resistant Receptacle protection as one decision. I would urge you and the rest of the decision makers to consider the two separately, as they provide different types of protection to the homeowner.

Tamper Resistant Receptacles were written into the code as data from a 10-year study of the National Electronic Injury Surveillance System (NEISS) showed that over 24,000 children had been injured as a result of sticking items into outlets. That staggering number is the equivalent of roughly 7 children per day harmed. 71% of the injuries happen in the home and range from first, second-, and third-degree burns, and sadly death in some cases.

The Tamper Resistant Receptacle has a shutter mechanism in place so that only by inserting a plug will the shutters move out of place and allow the plug blades access to the electrical contacts.

The estimated increase in cost to install Tamper Resistant Receptacles is about \$50.00 per home.

As you can see, Tamper Resistant Receptacles are truly a safety feature that will provide protection and unnecessary injury to children. AFCI is also a safety feature that will prevent fires in the home, but as you can see, the two subjects are different in nature, different in terms of type of protection, and as a result should be considered independently.

I would be happy to answer any questions you may have.

Best regards,

Michele Salimbeni Product Manager, Commercial & Residential Products

cc: AJ Boyle, Jerry Lucas

Summary of Written Comments Received Before or After the Public Hearing (May 7, 2009) on LSA Document #09-139

The following written comments were received before or after the public hearing on LSA Doc. #09-139:

- a. E-mail from Randy Ayers in complete opposition to the installation of arc fault circuit interrupters (AFCIs) in Class 2 structures (appended to this summary as <u>Attachment 1</u>).
- b. E-mail from Jim Mueller opposing the requirement for AFCIs (appended to this summary as <u>Attachment 2</u>).
- c. E-mail from Fred Hofheinz urging the Commission to re-insert the provisions for both AFCIs and tamper resistant receptacles (TRRs) in Class 2 structures (appended to this summary as Attachment 3).
- d. Letter from John Evorik opposing the requirement for AFCIs and tamper resistant receptacles (TRRs) in Class 2 structures (appended to this summary as <u>Attachment 4</u>).

Respectfully submitted,

Mara Snyder

Mara Snyder

From:

Randy & Mary Ayers [rwa7851@comcast.net]

Sent:

Thursday, May 14, 2009 11:21 AM

To:

Snyder, Mara

Subject:

Arc Fault Breakers

Hi.... I talked to you the other day about this subject. I have been an electrician for 40 years and owned my own company for the last 16 years. We closed the company two years ago. We wired upper end custom homes in the Carmel, Fishers, and Geist areas. I have never had so much trouble with a product as I had with these. I received MANY calls and complaints from people who had lost power in the bedrooms controlled by these breakers. Carmel was the first area to realize that these breakers were a HUGE problem and changed their rules to discontinue its use. Our supply house told us that all the other companies were having the same problems and that these breakers were being returned in large quantities. When going out to the job to trouble shoot the problem, we asked the customer what they had plugged into the circuit. Usually it was only a computer or a baby monitor, alarm clock etc. Some irate customers even asked us how to change these breakers themselves because they were NOT going to put up with this in a million dollar home. We told them it was code and some of them wanted the inspectors phone number. It seems that the only people that think these breakers are needed are the companies that make them. Just my two cents worth....

Randy Avers C-317-440-1441

From:

jmuellercpa@comcast.net

Sent:

Thursday, May 07, 2009 9:35 AM

To:

Snyder, Mara

Cc: Subject:

robert.annis@indystar.com

AFCI Circuit Breakers

The Star article shows three pictures of "possible causes of arc faults".

The first pic shows a condition that is in violation of Electrical Code (wire is too close to drywall; it should be centered on the stud if attached to stud).

The third pic shows a fray that should never happen, because the external jacket on the romex wire should extend into the box, so that the fray would never exist.

The second pic is just plain stupidity.

Based on the above, is there really a reason why these costly circuit breakers should be required? Maybe simply enforcing the existing Inspection Requirements for wiring installation would be better.

Jim Mueller

From: Sent:

Hofheinz [hofheinz@comcast.net] Thursday, May 07, 2009 7:58 AM

To:

Snyder, Mara

Subject:

fire safety

Dear members of the Commission

As a life-long Hoosier, I am writing to urge adoption of both arc-fault circuit interrupters tamper resistant outlets in the proposed new Indiana Electric Code. Some years ago, a dear friend of mine lost a child in an electrical fire in the family home - a tragedy that likely could have been prevented had the home been equipped with the appropriate circuit interrupters. That family has never recovered from that terrible tragedy. Additionally, I have heard of many toddlers who are badly shocked by placing foreign obstacles in electrical outlets. I can imagine no reason why Indiana is one of the few states that has not mandated these important safety features.

Fred Hofheinz 7685 Clarendon Road Indianapolis, IN 46260

May 18, 2009

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LEGAL AND CODE SERVICES

Ms. Mara Snyder Mr. Raliegh Kouns

Fax: 317-232-0146

E-mail:

rkouns@dhs.in.gov

msnyder@dhs.in.gov

Dear Ms. Snyder and Mr. Kouns:

I am writing in regards to the public hearing that was held on May 7, 2009. Unfortunately, I was out of the country or would have attended the hearing in person. After reading the responses of the well informed engineers, inspectors and Indiana officials, I would like to "voice" my opinions on the matter.

First: I must ask, How many laws does it take to make it a perfect world for which we live in? How thick does our life protective bubble have to be? New houses are wired 100% better today than they used to be.

Second:

Arc Fault breakers, to me, are not needed. Someone said 40,000 fires a year are electrical fires. Those "fires" are in houses that are how old? In the older homes you could not install Arc Fault breakers in them. I would like to know what the percentage of electrical fires are in new homes.

Third:

At \$45.00 each and separate neutral in conduit or 14-4 or (2) 14-2 home runs needed to be ran, the cost of a 2.000 square foot house would be more the \$1,200.00 more in labor and material, not \$350.00.

All service equipment suppliers like Square D and the rest have spent millions of dollars in testing their own equipment. With lobbying, they are trying to promote their product and get their money back.

Fourth:

Now throw in child proof receptacles at \$1.80 opposed to \$.50 a piece. Approximately 50-85 receptacles in the entire house. It just keeps adding up.

And please don't throw back at me, "What's the cost of a life?" New homes are not the problem. It's the forty (40) year old or older homes that have the problem. I know we re-wire older homes, new homes, service work and commercial.

If you must have us install these items, make sure you include re-wires. That is where you need it the most. By the way, if new homes can't afford arc fault breakers and child proof receptacles, how can low income re-wires afford them?

Inspectors, engineers and Indiana Officials don't know about cost. How many states in the good old USA are going bankrupt because of the dumb laws and liberal give-a-ways?

Sincerely,

John Evorik Evorik Electric Evorik Construction Winfield Electrical Inspector